

REMARKS/ARGUMENTS

Claims Status

Claims 1-16 are pending. Claims 1 and 2 are currently amended. Claims 7-11 are withdrawn pursuant to a previous Restriction Requirement. Claims 12-16 are added. Amended claim 1 finds support in original claim 1 and the specification: page 8, lines 15-18. Claim 2 is amended to correct a misspelling. New claim 12 finds support in original claim 1 and the specification: page 8, lines 10-13. New claims 13-16 find support in original claims 2 and 4-6 respectively. No new matter has been entered.

Claim Objection

Claim 2 is objected to for the improper spelling of the word “substituent”. This has been corrected. Applicants request withdrawal of this objection.

§112 Rejection

Claims 1-6 are rejected under 35 U.S.C. §112, second paragraph, as indefinite because the thermoplastic ingredient of claim 1 appears to be referred to as both “at least one polymer” and “thermoplastic carrier material.”

In accordance with the specification (page 6, lines 10-16), “thermoplastic carrier material” has been changed to “the at least one polymer” for consistency and antecedent basis purposes. Accordingly, Applicants request withdrawal of this rejection.

Background

The claimed invention relates to a transparent masterbatch for improving the surface properties of thermoplastics. Typical masterbatches in the field of plastics generally comprise insoluble components the size of which is typically within the visible range of light

(i.e., above 400nm); therefore, the light transmittance of the masterbatch and that of the end products are adversely affected.

As a solution to such light transmittance / transparency problems, Applicants' claimed masterbatch comprising 40-90% of polymer and 10-60% of polyhedral oligomeric silicon-oxygen cluster units according to *particular* formulas is "surprisingly" transparent (specification: page 2, lines 3-9).

§102(b) Rejection

Claims 1 and 4-6 are rejected under 35 U.S.C. §102(b) as anticipated by *Lichtenhan* (US 2001/0018486) as evidenced by *Hsiao* (US 2003/0018109). Applicants respectfully traverse this rejection.

Lichtenhan discloses flame retardant thermoplastic materials comprising 1-80 wt% of preceramic polymers (e.g., POSS monomers) blended with 20-99 wt% of thermoplastics (e.g., polyesters and copolyamides) (Abstract, [0009], [0026], [0031]). More specifically, *Lichtenhan* discloses the POSS monomers generically and provides only one exemplary structure (see "PolyPOSS resins" of [0026] on page 3) based on $R_8Si_8O_{12}$ units. Accordingly, such units, when compared to the polyhedral oligomeric silicon-oxygen cluster units as claimed by Applicants, only relate to the $(R_aX_bSiO_{1.5})_m$ unit of the claimed formula $[(R_aX_bSiO_{1.5})_m(R_cX_dSiO)_n]$ of claim 1 and relates to neither unit of the claimed formula $[(R_eX_fSi_2O_{2.5})_o(R_gX_hSi_2O_2)_p]$ of claim 12.

Even though each unit of the claimed formulas are present, since *Lichtenhan* is silent with respect to the $(R_cX_dSiO)_n$, $(R_eX_fSi_2O_{2.5})_o$, and $(R_gX_hSi_2O_2)_p$ units, *Lichtenhan* does not anticipate the polyhedral oligomeric silicon-oxygen cluster units as claimed by Applicants; namely $[(R_aX_bSiO_{1.5})_m(R_cX_dSiO)_n]$ of claim 1 and $[(R_eX_fSi_2O_{2.5})_o(R_gX_hSi_2O_2)_p]$ of claim 12.

Furthermore, with respect to *Hsiao* which is used by the Office as “providing basic background information about POSS molecules” (page 3), this reference discloses that the addition of POSS to polymers reduces flammability and improves mechanical strength of the polymers, as well as disclosing typical sizes and structures of POSS reagents ([0003], [0015]). More specifically, *Hsiao* discloses POSS molecules ($[\text{RSiO}_{1.5}]_n$) and POS molecules ($[\text{RMe}_2\text{SiOSiO}_{1.5}]_n$) ([0031], [0034] respectively) that can be related to the $(\text{R}_a\text{X}_b\text{SiO}_{1.5})_m$ unit of the claimed formula $[(\text{R}_a\text{X}_b\text{SiO}_{1.5})_m (\text{R}_c\text{X}_d\text{SiO})_n]$ of claim 1 and the $(\text{R}_e\text{X}_f\text{Si}_2\text{O}_{2.5})_o$ unit of the claimed formula $[(\text{R}_e\text{X}_f\text{Si}_2\text{O}_{2.5})_o (\text{R}_g\text{X}_h\text{Si}_2\text{O}_2)_p]$ of claim 12. However, *Hsiao* is silent with respect to the $(\text{R}_c\text{X}_d\text{SiO})_n$ and $(\text{R}_g\text{X}_h\text{Si}_2\text{O}_2)_p$ units of the claimed formulas.

Accordingly, *Hsiao* does not anticipate the polyhedral oligomeric silicon-oxygen cluster units as claimed by Applicants; namely $(\text{R}_a\text{X}_b\text{SiO}_{1.5})_m$ and $(\text{R}_c\text{X}_d\text{SiO})_n$ of claim 1, and $(\text{R}_e\text{X}_f\text{Si}_2\text{O}_{2.5})_o$ and $(\text{R}_g\text{X}_h\text{Si}_2\text{O}_2)_p$ of claim 12.

Additionally, Applicants submit that *Lichtenhan* and *Hsiao* do not render obvious Applicants' claims. As follows from the above comments, both *Lichtenhan* and *Hsiao* are silent with respect to at least the $(\text{R}_c\text{X}_d\text{SiO})_n$ and $(\text{R}_g\text{X}_h\text{Si}_2\text{O}_2)_p$ units of the claimed formulas (from claim 1 and claim 12 respectively). Accordingly, silence of these units can not be construed as either a disclosure or suggestion of such units, neither *Lichtenhan* nor *Hsiao*, nor the combination of the two, render obvious the polyhedral oligomeric silicon-oxygen cluster units as claimed by Applicants; namely $(\text{R}_a\text{X}_b\text{SiO}_{1.5})_m$ and $(\text{R}_c\text{X}_d\text{SiO})_n$ of claim 1, and $(\text{R}_e\text{X}_f\text{Si}_2\text{O}_{2.5})_o$ and $(\text{R}_g\text{X}_h\text{Si}_2\text{O}_2)_p$ of claim 12.

§103(a) Rejections

A. Claim 2 is rejected under 35 U.S.C. §103(a) as obvious in view of the combination of *Lichtenhan* and *James Jr.* (US 2002/0128414). Applicants respectfully traverse this rejection.

As discussed above, *Lichtenhan* is silent with respect to the $(R_cX_dSiO)_n$, $(R_eX_fSi_2O_{2.5})_o$, and $(R_gX_hSi_2O_2)_p$ units of the claimed formulas. Similarly, the same is true for *James Jr.* *James Jr.* discloses compositions comprising blends of polymers with POSS materials (Abstract) and provides many exemplary structures of such POSS materials (e.g., Structures (I)-(VIII) and (XII)) that are all based on the core $[RSiO_{1.5}]_\lambda ([0033])$. Accordingly, such structures of *James Jr.* can be said to relate to only the $(R_aX_bSiO_{1.5})_m$ unit of the claimed formula $[(R_aX_bSiO_{1.5})_m (R_cX_dSiO)_n]$ of claim 1 and to neither unit of the claimed formula $[(R_eX_fSi_2O_{2.5})_o (R_gX_hSi_2O_2)_p]$ of claim 12.

Therefore, both *Lichtenhan* and *James Jr.* are silent with respect to the $(R_cX_dSiO)_n$, $(R_eX_fSi_2O_{2.5})_o$, and $(R_gX_hSi_2O_2)_p$ units of the claimed formulas. Thus, as silence of these units can not be construed as either a disclosure or suggestion of such units, neither *Lichtenhan* nor *James Jr.*, nor the combination of the two, render obvious the polyhedral oligomeric silicon-oxygen cluster units as claimed by Applicants; namely $(R_aX_bSiO_{1.5})_m$ and $(R_cX_dSiO)_n$ of claim 1, and $(R_eX_fSi_2O_{2.5})_o$ and $(R_gX_hSi_2O_2)_p$ of claim 12.

B. Claim 3 is rejected under 35 U.S.C. §103(a) as obvious in view of the combination of *Lichtenhan* and *Hsiao*. Applicants respectfully traverse this rejection in accordance with the comments already provided above in the §102(b) section that discusses the combination of *Lichtenhan* and *Hsiao* for both anticipation and obviousness purposes.

Conclusion

Applicants submit that all now-pending claims are in condition for allowance.

Applicants respectfully request the withdrawal of the objections and rejections, and passage of this case to issue.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Justine M. Wilbur', is written over a horizontal line.

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